**Topic:** FOLLICULAR & HURTHLE CELL LESIONS AT FINE-NEEDLE ASPIRATION CYTOLOGY

**Title:** Combined clinical, thyroid ultrasound and cytological features help to predict thyroid malignancy in follicular and Hürthle cell thyroid lesions: results from a series of 505 consecutive patients.


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**SUMMARY**

**Objective:** The cytological patterns of follicular and Hürthle cell nodules are included among the indeterminate results of fine-needle aspiration cytology, because distinction between benign and malignant lesion can only be made on histological criteria. The diagnostic value of atypia at cytology, clinical parameters and echographic patterns were examined to establish the risk of malignancy in 505 patients with follicular and Hürthle cell nodules at cytology.

**Design and patients:** The study included 505 consecutive patients who had undergone thyroidectomy from the period 2002-2005.

**Results:** Histological diagnosis of malignancy was carried out in 125 of 505 (25%) patients, the follicular variant of papillary carcinoma being the most frequent histotype. Only atypia at cytology and spot micro-calcifications at ultrasound were significantly predictive of malignancy. Male gender, normal thyroid volume, single nodularity, nodule hypoechogenicity, size and blurred margins were associated with malignancy, although not significantly. An arbitrary clinical score allowed the identification of patients with high (41%; 110 patients) and low (16%; 242 patients) risk of malignancy. Combining the clinical score with the presence of atypia at cytology, the authors could identify 30 patients (6%) in whom the risk of malignancy was as high as 63%.

**Conclusion:** Twenty-five percent of patients with a cytological result of follicular and Hürthle cell thyroid lesion had a final diagnosis of malignancy. Only atypia at cytology and spot micro-calcifications at thyroid ultrasound were significantly associated with malignancy. Other clinical parameters and thyroid ultrasound patterns can be used to set up a clinical score useful for predicting the individual risk of malignancy before surgery.

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**COMMENT**

Thyroid nodules are frequent in the general population and only a minority of these nodules are likely to cause significant clinical problems. The introduction of fine-needle aspiration cytology (FNAC) in the mid-seventies (1975 in the USA, 1979 in Belgium) has allowed to markedly reduce the number of patients submitted to thyroid surgery for benign nodular lesions and increase in turn the prevalence of malignancy in surgical series. However, FNAC has its limitations, especially when the cell pattern shows follicular proliferation. Such pattern can be found in
follicular carcinoma and in the follicular variant of papillary carcinoma, but also in hyperplastic nodules within a benign goiter and follicular adenoma. Based solely on cytological criteria, the distinction between benign and malignant follicular neoplasia is not feasible without histology. Similarly, Hürthle cells (oncocyes or oxyphilic cells) can be found in Hürthle cell adenomas and carcinomas and histology is needed for the final diagnosis of an oncocytophoma. Such cytological patterns (follicular proliferation and/or oncocytes) are classified among the indeterminate diagnoses or “atypia” in FNAC and, therefore, the objective of present study was to assess whether the finding of atypia at FNAC, associated with specific clinical parameters and echographic patterns could be useful to predict malignancy. The study is also of interest because of the large number of patients included (over 500) from the same institution.

Of the 505 patients, 426 had a follicular lesion and 79 a Hürthle cell lesion at FNAC. Among them, 25% had a final diagnosis of thyroid malignancy at histology. Histological diagnosis of malignancy was made in 46/101 nodules (45%) presenting atypia and in 79/404 nodules (20%) without atypia (P<0.001). In follicular nodules, malignancy was found in 40/83 samples with atypia compared with 76/343 without atypia (P<0.001). Clinical parameters were found to be of little help to identify malignancy. With regard to specific echographic parameters, only spot micro-calcifications (P=0.009) and blurred nodular margins (P=0.06) were associated with malignancy.

The authors constructed an arbitrary clinical score which allowed the identification of patients with a high (41%) versus a low (16%) risk of malignancy. Combining the clinical score with the presence of atypia at cytology, the authors could identify 30 patients (6%) in whom the risk of malignancy was as high as 63%. Finally even in the subgroup with the lower risk, malignancy was found in 16% of the patients, hence confirming the appropriateness of surgical treatment for follicular and Hürthle cell neoplasia.

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See Figure below